REMARKS

In the Office Action dated October 25, 2004, claims 1-18 and 23-30, in the above-identified U.S. patent application were rejected. Reconsideration of the rejections is respectfully requested in view of the above amendments and the following remarks. Claims 1-18 and 23-30 remain in this application, claims 19-22 have been canceled.

Claims 1-18 and 23-30 were rejected under 35 USC §112, second paragraph, as indefinite. Claims 1, 2 and 23 have been amended to clarify the language which was found indefinite. Regarding claims 13 and 14, applicants point out that the application clearly describes a first matrix which contains water. Page 5, lines 5-17, indicates that the first matrix can contain the necessary liquids before the beginning of adsorption and that the preferred liquid is water. In view of this disclosure, applicants contend that claims 13 and 14 are not indefinite. In view of the above amendments and discussion, applicants request that these rejections be withdrawn.

Claims 1-8, 15-18 and 23-27 were rejected under 35 USC §103(a) as unpatentable over Scholtissek in view of Abuknesha. Scholtissek discloses a device for the quantitative analysis of harmful substances using an immunological reaction. This immunological reaction is similar to a well known immunoassay wherein an antibody which is specific to an analyte is bound to a carrier matrix. This antibody is saturated with a tracer molecule binding to the antibody in the same way as the analyte. When this immobilized complex of antibody and tracer is brought into contact with the analyte, the analyte molecules displace the tracer molecules and

consequently there is a measurable linear relationship between analyte concentration and signal. The tracer molecule is usually linked to a marker such as a fluorescent marker so that the more analyte is present the lower the signal will be. The only difference Scholtissek makes to this well known immunoassay is that he does not measure the remaining tracer molecules on the immobilized antibody, but instead the free tracer molecules which are allowed to diffuse through a certain zone in the carrier. Column 2, lines 22-36, of Scholtissek describe the well known immunoassay and column 2, line 49 to column 3, line 15 describes Scholtissek's modification. There is no suggestion in Scholtissek that the complex between the binding partner (i.e. the antibody specific for the analyte), and the analyte can be eluted from the carrier matrix. Scholtissek's device would not work if the binding partner for the analyte was not immobilized since the bound tracer molecules would diffuse with the free tracer molecules.

In contrast to Scholtissek, in the present invention, after the analyte is bound to the first binding partner (i.e. formed a complex with the first binding partner) the complex is eluted and then detected. Thus, Scholtissek teaches a binding partner which is immobilized on the carrier while the present invention uses a first binding partner of an analyte in elutable form. The advantage of eluting the complex between the binding partner and the analyte is that the concentration of the analyte to be detected can be increased. The analyte bound to the binding partner in the complex can be analyzed using chromatography or in the liquid phase. Unlike the prior art, the detection does not have to be carried out on the carrier matrix.

Abuknesha does not cure the deficiencies in Scholtissek as Abuknesha does not disclose an elutable binding partner specific for the analyte. Pages 11-13 of Abuknesha describes a number of different immunoassays including displacement immunoassays and competitive immunoassays which all rely on an immobilized binding antibody. The office action refers to a separation step allegedly taught by Abuknesha. Page 13 of Abuknesha states that "by arranging for bound and unbound labeled ligand to display different properties from each other (i.e. by fluorescent quenching or polarization) the need for a separation step may be avoided". However, the ligand as referred to by Abuknesha is defined as an authentic analyte species (i.e. a tracer which binds to the binding antibody in the same way as the analyte, page 11, fourth paragraph). Therefore, Abuknesha's ligand does not correspond to the binding partner in the present invention. Applicants point out that Abuknesha does not clearly indicate what separation step he is referring to and there is no disclosure of an elution step of the complex between the binding partner and the analyte to be detected. Abuknesha clearly discloses that the carrier means is presented to a detection means for detection of the analyte (e.g. claim 1) and thus there is no elution step involving the binding partner as in the present invention. Applicants respectfully contend that neither reference discloses steps where a sample gas suspected of containing an analyte is brought into contact with a gas- and liquid-permeable carrier matrix containing a first binding partner of an analyte in elutable form such that the analyte binds to the first binding partner and the complex of the analyte and binding partner is eluted from the carrier matrix.

In addition, Abuknesha is not suitable for the detection of analytes directly from the gas phase. Abuknesha's device requires that a liquid sample or an aqueous spray containing the analyte be formed (page 2, last two paragraphs). The device disclosed in figure 2 produces a fine aqueous spray in order to take up the sample before it is applied to the carrier means (page 23, seventh paragraph). In view of the above discussion, applicants contend that the combination of Scholtissek and Abuknesha does not render the presently claimed invention obvious and request that this rejection be withdrawn.

Claims 9-12 and 28-30 were rejected under 35 USC §103(a) as unpatentable over Scholtissek in view of Abuknesha further in view of Schlipfenbacher. As discussed above, the combination of Scholtissek and Abuknesha does not suggest an elutable binding partner for the analyte. Schlipfenbacher does not cure this deficiency as Schlipfenbacher only discloses a fleece material useful as a carrier matrix. Schlipfenbacher does not suggest or disclose an elutable binding partner for the analyte. In view of the above discussion, applicants request that this rejection be withdrawn.

Applicants respectfully submit that all of claims 1-18 and 23-30 are now in condition for allowance. If it is believed that the application is not in condition for allowance, it is respectfully requested that the undersigned attorney be contacted at the telephone number below.

In the event this paper is not considered to be timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fee for such an extension together with any additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account No. 02-2135.

Respectfully submitted,

By 

Monica Chin Kitts
Attorney for Applicant
Registration No. 36, 105
ROTHWELL, FIGG, ERNST & MANBECK
1425 K. Street, Suite 800
Washington, D.C. 20005
Telephone: (202) 783-6040